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Marsh soils are valuable carbon sinks

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University of Rhode Island undergraduate student Morgana Agin samples tidal marsh soils for carbon accounting purposes. Photo by Mark Stolt.

Tidal marshes are highly productive ecosystems that have the potential to be highly efficient carbon (C) sinks and may serve (especially those being restored) as an important form of C credits to offset greenhouse gas emissions. Knowing how much C accumulates in a marsh soil is critical to credible C accounting.

In a recent article in the *Soil Science Society of America Journal*, researchers studied back barrier marsh soils in New England and compared tidal marsh C sequestration rates with those of adjacent forest soils. They tested whether a single C sequestration rate could function as a representative value for C accounting of these types of marshes and whether rates depend on relative elevation above sea level.

The tidal marsh soils had C sequestration rates three to four times greater than the average rate in adjacent forest soils, pointing to their importance in C accounting. The rates depended on elevation, so a function instead of a single value is needed for accurate C accounting. Average C sequestration rates were significantly higher in the lowest- vs. the higher-elevation marshes, suggesting that elevation above sea level and tidal range may be more important than marsh type in explaining C sequestration in tidal marsh soils.

Dig deeper

Stolt, M., & Hardy, A. (2022). Carbon sequestration in back-barrier tidal marsh soils.

Soil Science Society of America Journal. **https://doi.org/10.1002/saj2.20437**

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